

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/10653

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ H01M14/00, H01L31/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ H01M14/00, H01L31/04

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1926-1996	Toroku Jitsuyo Shinan Koho	1994-2003
Kokai Jitsuyo Shinan Koho	1971-2003	Jitsuyo Shinan Toroku Koho	1996-2003

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	JP 2002-222618 A (Fujikura Ltd.), 09 August, 2002 (09.08.02), Claims 1 to 3; Par. No. [0009]; examples (Family: none)	1, 2 2
X Y	JP 2001-345125 A (Hitachi Maxell, Ltd.), 14 December, 2001 (14.12.01), Claims 1 to 26; examples (Family: none)	1, 2 2
X Y	JP 2001-357898 A (Matsushita Electric Works, Ltd.), 26 December, 2001 (26.12.01), Claims 1 to 7; examples (Family: none)	1, 2 2

☒ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
25 November, 2003 (25.11.03)Date of mailing of the international search report
09 December, 2003 (09.12.03)Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	JP 2002-63949 A (National Institute of Advanced Industrial Science and Technology), 28 February, 2002 (28.02.02), Claims 1 to 2; examples (Family: none)	1,2 2
X Y	JP 2002-63813 A (Daiso Co., Ltd.), 28 February, 2002 (28.02.02), Examples 6, 7 (Family: none)	1,2 2
X Y	JP 2000-268890 A (Toshiba Corp.), 29 September, 2000 (29.09.00), Claims 1 to 2; example 4 (Family: none)	1,2 2
X Y	JP 2002-100417 A (Fuji Xerox Co., Ltd.), 05 April, 2002 (05.04.02), Claims 1 to 6; examples (Family: none)	1,2 2
X Y	JP 2002-246066 A (Fuji Photo Film Co., Ltd.), 30 August, 2002 (30.08.02), Claims 1 to 10; example 2 (Family: none)	1,2 2
X Y	JP 2002-246076 A (NEC Corp.), 30 August, 2002 (30.08.02), Claims 1 to 9; Par. No. [0020]; examples (Family: none)	1,2 2
X Y	JP 2002-246624 A (Sharp Corp.), 30 August, 2002 (30.08.02), Claims 1 to 9; examples (Family: none)	1,2 2
X Y	JP 2002-252359 A (Seiko Epson Corp.), 06 September, 2002 (06.09.02), Claims 1 to 17; Par. Nos. [0030] to [0043]; examples (Family: none)	1,2 2
X Y	JP 9-306554 A (Japan Science and Technology Corp.), 28 November, 1997 (28.11.97), Claims 1 to 2; examples (Family: none)	1,2 2
X Y	JP 11-195440 A (Futaba Corp.), 21 July, 1999 (21.07.99), Claims 1 to 3; examples (Family: none)	1,2 2

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	JP 11-219734 A (Sekisui Chemical Co., Ltd.), 10 August, 1999 (10.08.99), Claims 1 to 8; examples (Family: none)	1, 2 2
X Y	JP 11-354169 A (Minnesota Mining and Manufacturing Co.), 24 December, 1999 (24.12.99), Claim 1; examples (Family: none)	1, 2 2
X Y	JP 2000-299138 A (Idemitsu Kosan Co., Ltd.), 24 October, 2000 (24.10.00), Claims 1 to 3; Par. Nos. [0011], [0012]; examples (Family: none)	1, 2 2
Y	Supervised by Hironori ARAKAWA 'Shikiso Zokan-gata Taiyo Denchi no Saishin Gijutsu', Kabushiki Kaisha CMC (Tokyo), 20 September, 2001 (20.09.01), 2nd print, pages 176 to 182, 'Chapter 16 Hi Titania- gata Taiyo Denchi no Kaihatsu', pages 183 to 188, 'Chapter 17 Fukugoka Sankabutsu Handotai Denkyoku no Kaihatsu', pages 189 to 194, 'Chapter 18 Nb ₂ O ₅ o Mochiita Shikiso Zokan Taiyo Denchi no Kaihatsu'	2

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Box I Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
(See extra sheet)

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1, 2

Remark on Protest ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

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Continuation of Box No.II of continuation of first sheet(1)

There must exist a special technical feature so linking a group of inventions of claims as to form a single general inventive concept in order that the group of inventions may satisfy the requirement of unity of invention. Although the technical feature of "a photoelectric transducer characterized in that an ITO substrate coated with a metal oxide or a derivative thereof is used as a transparent electrode" is common to claims 1-5, this technical feature is merely a well-known one as disclosed in documents 1-15 listed below. Therefore, this technical feature cannot be "a special technical feature".

Consequently, there is no special technical feature so linking the group of inventions of claims 1-5 as to form a single general inventive concept. Therefore, it appears that the group of inventions of claims 1-5 do not satisfy the requirement of unity of invention.

Next, the number of groups of inventions defined in the claims of the international application and so linked as to form a single general inventive concept, namely, the number of inventions will be examined.

The inventions defined in the claims of the application are considered to contain the following four groups A-D, in view of their dependent relationship.

A: claim 1 and claim 2 referring to claim 1

B: claim 1 and claim 3 referring to claim 1

C: claim 1 and claim 4 referring to claim 1

D: claim 1 and claim 5 referring to claim 1

Although the technical feature of claim 1 is common to groups A-D, it cannot be considered as "a special technical feature" among the groups A-D, since the technical feature is well known as disclosed in documents 1-15 listed below. Since there is no "special technical feature" common to any two or more of groups A-D, claims 1-5 are considered to contain four inventions.

[Document List]

1. JP 2002-222618 A (Fujikura Ltd.) 9 August, 2002 (09.08.02)
2. JP 2001-345125 A (Hitachi Maxell, Ltd.) 14 December, 2001 (14.12.01)
3. JP 2001-357898 A (Matsushita Electric Works, Ltd.) 26 December, 2001 (26.12.01)
4. JP 2002-63949 A (National Institute of Advanced Industrial Science and Technology) 28 February, 2002 (28.02.02)
5. JP 2002-63813 A (Daiso Co., Ltd.) 28 February, 2002 (28.02.02)
6. JP 2000-268890 A (Toshiba Corp.) 29 September, 2000 (29.09.00)
7. JP 2002-100417 A (Fuji Xerox Co., Ltd.) 5 April, 2002 (05.04.02)
8. JP 2002-246066 A (Fuji Photo Film Co., Ltd.) 30 August, 2002 (30.08.02)
9. JP 2002-246076 A (NEC Corp.) 30 August, 2002 (30.08.02)
10. JP 2002-246624 A (Sharp Corp.) 30 August, 2002 (30.08.02)
11. JP 2002-252359 A (Seiko Epson Corp.) 6 September, 2002 (06.09.02)
12. JP 9-306554 A (Japan Science and Technology Corp.) 28 November, 1997 (28.11.97)
13. JP 11-195440 A (Futaba Corp.) 21 July, 1999 (21.07.99)
14. JP 11-219734 A (Sekisui Chemical Co., Ltd.) 10 August, 1999 (10.08.99)
15. JP 11-354169 A (Minnesota Mining and Manufacturing Co., Ltd.) 24 December, 1999 (24.12.99)

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